COMMERCIAL HORTICULTURE AND DOMESTIC SPACE AT ROMAN POMPEII: THE HOUSE OF THE SHIP EUROPA

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ABSTRACT

Cole Johnson Warlick: Productive Horticulture and Domestic Space in Roman Pompeii: The House of the Ship Europa
(Under the direction of Hérica Valldares)

In this study, I evaluate the relationship between a productive market garden and its associated domestic spaces as evidence of continuing but altered use of the property. Previous scholarship has similarly sought to interrogate the interactions between homes and economic activity in Pompeii. These studies, however, have focused solely on workshops as places of economic production. The intent in this study is to bring to light an often-understudied aspect of the economy of Roman Pompeii, one that took up a large area of land in the city at the time of the volcanic eruption. I begin with discussion of previous scholarship on workshops, mainly that by Miko Flohr and use many of his methods to look at the House of the Ship Europa. I argue that this property further shows the continuing use of the domestic areas alongside renovation and economic production.

To my mother DeAnna Johnson Warlick, in recognition of her limitless support.

TABLE OF CONTENTS

LIST OF FIGURES

Introduction

Miko Flohr has previously argued that "that there is no evidence that workshops were really 'hidden,' though there often appears to have been some separation between working and living, both visually and practically"[1]. While he makes a convincing argument in the specific context of workshops (bakeries, *fullonicae, lanifricariae,* and dyeing workshops), he ignores other types of economically productive activities that might occur outside of specialized built spaces. This study aims to locate and place economic activity in the urban fabric outside of the typical workshop scenario and emphasize the blurred lines that could develop between economic and domestic space in Pompeii, especially during the rebuilding of the city following the 62 CE earthquake. I intend to make more clear the interaction between the traditional atrium house model and large-scale productive activity, specifically horticultural production or "market gardening" as Jashemski referred to it. This goal will be achieved by mapping the delineations and relations of spaces that once held purely domestic functions with their renovated economically oriented spaces through a middle-class house in Pompeii: the House of the Ship Europa.

This ~~insula~~ townhouse house, which in reality takes up nearly an entire insula, evidences extensive restructuring and renovation in the domestic area in addition to market gardening and resource extraction in an open area. By looking at this distinct type of economic activity, I intend

[1] Flohr 2012 pg. 3 He does, however, point out that houses typically show other renovations and adornments at the same time workshops are added as some type of large-scale investment project.

to show that there is no definite or typical structuring of Pompeian economic and domestic spaces but that the separation of these different areas was instead determined by the type of activity and the goals of the homeowner. Existing divisions between economic and residential areas within a house were also impacted by seismic activity in the Bay of Naples, which led to the restructuring of numerous Pompeian houses, especially after 62 CE. I also hope to point out that commercial activity was not solely a sordid symbol of a working man in defining the home but could instead be used in a positive manner to highlight the status of the homeowner. I aim to look at a similar question through a case of production that moves outside the workshop to trace different types of economic activity in open, garden-like, area as it relates to domestic space.

The word garden is a somewhat controversial word to use to describe the House of the Ship Europa as it is not the typical garden that is frequently the focus of scholarship on the gardens of Roman Pompeii. It is not a carefully created pleasure space for entertaining and relaxation that is manicured, decorated, and carefully curated but rather is a loosely organized open space with evidence of a variety of plantings. It is also not a traditional *viridarium;* it was certainly capable of producing much more food than the house needed to sustain itself. While it is a terraced garden, this seems to be a function of the natural topography of this property rather than a purposeful accentuation intended to create an atmosphere of luxury. Though I may refer to it as a garden, it is important to note the unique aspects of the outdoor space attached to this insula house. In order to make this disparity apparent, a consideration of scholarship on more traditional Pompeiian gardens is necessary.

The question of the status of houses with economically productive spaces is a current debate in the field. Early opinions held that the renovation of domestic installations to include workshops and other economic areas were signs of lower-class occupation of properties

following an exodus of the upper classes after the 62 CE earthquake. [2]Arguing against the trend to align workshops connecting to atrium houses as an indication of decline in the homeowner's status, Flohr states that "an atrium house was a normal location for a workshop."[3] I will build on this assertion and show that this intrinsic connection between what? can extend to other economic activities. Like houses with fulleries, the House of the Ship Europa has enough space for continuous domestic activity that could persist relatively unencumbered by the economic activity happening in the rest of the property. However, it is impossible to deny the impact the market garden would have had on the house for its residents and the public. The activities of food production were not limited to the rural villa of the mega-wealthy. Rather, a large part of the South East area of Pompeii was being used for market gardening and viticulture at the time of Vesuvius' eruption (Fig. 1). The House of the Ship Europa stands as an urban produce space that would have been able to supply the owner with a steady stream of income as well as the status afforded to one capable of owning such a large area of land as well the plants within it. Excellent intro!

Workshops and Domestic Space

Flohr's work on the relation of commercial activity to domestic space has, as already mentioned, focused on workshops like fulleries and bakeries. While Andrew Wallace-Hadrill had previously found that only a small portion of atrium houses had workshops related to them, Flohr's more recent research has demonstrated that the majority of workshops in Pompeii are either connected to or related in some way to an atrium house (Fig. 1). Flohr uses this statistic to

[2] Wallace-Hadrill 1994

[3] Flohr 2012 pg. 7

argue against the popular narrative of workshops as markers of decline and suggests instead that workshops could be placed near a house with little negative implications.[4]

In regard to public interactions, to which his 2012 article is devoted, he found that there seemed to be no taboo for placing *tabernae* by the main doors of atrium houses and thus making a clear connection to economic activity. The same does not seem to be true, however, for *tabernae* with workshops as well as the general placements of workshops. Instead of sharing the space with the main entrance, these spaces were often separated by a "closed façade" or another *taberna* that did not include a workshop.[5] This division is not a uniform characteristic, however. Bakeries, *fullonicae*, and dye shops all appear to be comfortably situated within *tabernae* with no major need of concealment. Flohr also notes some houses where the view of the workshop spaces to the public was purposely obstructed by walls or other features.[6] It seems then that a main characteristic of the spatial relationships across the different types of workshops was their ability to openly display production in a *tabernae.* These shopfront workshops appear to require no direct visual barriers but often show some attempt at distancing from the home. However, workshops built directly within a home provided more variability in concealment among the types of economic activities. Bakeries are more likely to be visible to the public while *fullonicae*

[4] Flohr 2012 pg. 7 This is one of the most clear and well defended points Flohr makes as it is the one he most effectively supports with evidence and clear numbers and figures. While his later points rely on representative examples, this purported survey of the total corpus is much more convincing.

[5] Flohr 2012 pg. 11 Flohr discusses the Casa di Sallustio, Casa del Citarista, and the Casa degli Amorini Dorati which all have various types of workshop spaces attached. He finds that these show clear connections to the houses and believes this to mean there were not "serious consequences for the social perception" of connected *tabernae* to atrium houses. None of these, however, are directly connected to the main entrance nor allow direct lines of sight.

[6] Flohr 2012 pg. 12 House Vi 14.21-22 installed a marble fountain in the atrium when the *fullonica* was built in the back of the house to obstruct views through the house from the entrance. House VII 1.30.36-37 built a wall at the back of the atrium in place of a *tablinum* which completely separated the main entryway of the house from the workshop space in the back.

are almost invisible. The justification for this differing treatment can be attributed to their olfactory qualities. The smell of *fullonicae* was extremely unpleasant and would have made both living close to these establishments and visiting them very unpleasant, necessitating physical barriers between the public and the house. On the other hand, bakeries with the delicious scent of fresh baked bread would have helped in luring passersby and creating new customers. As a result, these businesses could be more open to visitors and residents alike. The *lanifricariae* are wholly hidden from view within houses and seemingly within the city, favoring small alleys rather than major streets, though the exact purpose of their isolation is unclear. If they were, indeed, involved in meat processing the issue might once again have been the unpleasant smell that resulted from these activities and these workshops' general uncleanliness—facts that would have led the work of *lanifricariae* to be moved away from public and domestic spaces for practical reasons. [7] This survey of workshops is very effective at creating a map of general trends but never engages deeply with particular spaces. In this sense, it relies on the reader to accept these few pieces of evidence as representative of a sample. Flohr's previous findings on the interaction of the public and private within? workshops will be crucial to creating a better understanding of the way in which market gardens related to their atrium houses.

Flohr's conclusions on the relationship of private domestic space and workshops find similar complications and varying levels of connectivity. One of the most striking results of his research is that the majority of houses with workshops evidence renovation to the domestic

[7] Flohr 2012 pg. 10, 14, 16 Despite this unseemly smell and general trend to distance fulleries from homes, as Flohr points out, House V 1.3.7 evidences a dye shop and fullery on either side of the main entrance to the house where the vats were clearly exposed and visible suggesting that the relationships are variable especially dependent on whether placed in *tabernae* or interior spaces. There is actually great variation in organization, with *fullonicae* sometimes being embedded in the domestic fabric with no divisions or their water flow being also used for luxury installations. In many ways these constant varying characterizations of the relationships between fulleries and houses could have been dealt with more clearly but nonetheless underscore the complex relationships possible.

spaces, adding decoration and general improvements. He also points to a trend towards "regulating the traffic flow within the house" as further support to the likelihood of economic activity being able to be carried out alongside daily domestic life. In addition, he refutes any claims of diminished or nonexistent domestic activity with the presence of a kitchen, and in some cases, cooking equipment. According to Flohr, "the differences between workshop types in the way they were embedded in their domestic environment are much larger."[8] All of these issues appear in the case studies to be considered, especially the question of continuous domestic use of the House of the Ship Europa.

Flohr overwhelmingly opts for a large-scale approach to understanding the relationship between economic activity and domestic spaces. While this has its strengths in creating a general and neat narrative, it sometimes obfuscates the variability he himself brings up. Rather than dealing with a few houses in brief, I intend to engage deeply with a single case study. First name? Montiex has adopted many of the same techniques as Flohr to map production in the urban fabric of the city. However, his data and figures appear more thorough and even include market gardening. Yet, Montiex's study still discusses production in terms of a carefully defined craft workshop that takes raw products and increases their value, ignoring the production of raw products themselves.[9] His work focuses on the organization of the city and the general productive environment of Pompeii, and is therefore more suited to the general discussion of a

[8] Flohr 2012 pg. 16 I've provided a summary of his main points in order to recall and address them later as they appear.

[9] Montiex 2016 pg. 1-2 Montiex defines production in terms of craft as "an activity based on the application of technological knowledge that uses (cognitive or material) tools and tends to produce added value." He classifies this as a broad approach that allows discussion of a variety of economic activities that are mainly only visible in the archaeological record of Pompeii. He nonetheless seems to stick to traditional types of economic activity in his chapter.

few sites paired with quantitative analysis. However, when focusing more directly on the relationship of these productive spaces to homes, as I intend to do here, it would seem that a more in-depth investigation of a single property can prove fruitful.

Montiex's study also has a particular strength in that it makes readily apparent the problems of Pompeiian archaeology and qualifies its findings in accordance. He points out the lack of documentation for some types of economic activity and calls attention to the apparent absence of metal workshops in this city despite their overwhelming presence in other contemporary sites, suggesting this is a matter not of preservation but of documentation.[10] He even discusses a set of small finds which would likely not have been recorded or preserved and presents an interpretation of these metal tools relating to "saddle makers," though with a much broader job description than the modern conception as a further example of this archaeological problem. His approach to highlighting the aspects of economic activity that have remained hidden is insightful but somewhat limited in the context of his broad survey study which seeks to contextualize urban production as a whole rather than in individual cases. Yet, even when paying attention to these invisible types of economic activity, he does not consider the horticultural production of the city as part of his urban production.

Montiex's discussion of attempts to quantify the production of the city blends well with his macroscopic approach but does not appear to provide any clear insight into the actual processes of production. Instead, it makes a convincing argument against relying on numerical values in this way as they have a tendency to be skewed and non-representative of the

[10] Montiex 2012 pg. 14 Montiex compares the number of metal workshops found at Pompeii to the numbers from modern day Switzerland and suggests that the small percentage at Pompeii in comparison to the overwhelming majority that metal workshops take in the Swiss record is not due to an absence of these types of facilities but rather a lack of interest by earlier excavators of Pompeii.

contemporary reality.[11] Some aspect of quantity is certainly important, however, when considering the market gardening of the city, especially at the House of the Ship Europa. In many ways, it is the scale of the growing and planting that sets it apart as a site of economic activity and productive space. It is clear that a quantifying project is difficult in the contexts of more defined products; in the case of gardening, it becomes increasingly difficult to gauge yield. Beyond recognizing the unique scale of the market garden, an economic estimate of the quantity of production of the house complex is not the goal of this paper. The absence of quantifying work arises not just from the problems inherent in an investigation of that type but also the relative irrelevance it has to the goal of investigating the relationship between this productive economic space and the domestic, residential areas of the house. Montiex's map of economic installations nonetheless provides a useful visualization of an attempt to quantify production that makes clear the central role economic activity played in the fabric of the city (Fig. 2). Likewise, the map shows that these economic installations are spread around the city, but the market gardening is largely concentrated in a specific area.

Additionally, the House of the Ship Europa varies from these studies of production as it moves beyond the workshop, and more specifically beyond the fullery. Consideration of the viticulture and productive horticulture within the fabric of the city and its relationships to domestic space appear largely absent from the discussions of the Pompeiian economy by scholars like Flohr, Poehler, and Montiex. I intend to apply some of the same attention to space and organization that has previously been applied to fulleries, bakeries, and dye shops to better

[11] Montiex 2012 pg. 9-11 For the study of workshops in particular, quantifying production is very problematic as it is rare for both the workspace and the products of that workshop to be preserved. However, it is an analysis that used both the architectural environment and major installations in addition to actual outcomes of that space to best asses the potential output of a single site. Any quantifying of bread production relies on a set of assumptions that are not always applicable nor even supported by findings.

understand how market gardening on the scale of the House of the Ship Europa relates or differs from these other economically productive spaces. One of the strongest aspects of Flohr's work is the way in which he has convincingly argued against the correlation of economic production and the decline of space that previous scholars, like Wallace-Hadrill, had held for decades. This study of a market garden is intended to further assert that production is not inherently tied to decline but can coincide with general change and restructuring in addition to intentional improvement of domestic spaces.

Flohr has written extensively on *fullonicae*, their place in the home, their capacity, and the renovation of properties to house them.[12] Montiex has done much of the same for the bakeries of Pompei, while other scholars have focused on ceramic production, dye shops, and food shops.[13] In many ways they have sought to rehabilitate the relationship of economic activity and the house, often through a focus on economics rather than the social aspects of these actions. The methods they have employed in many ways can be applied to this study, as can be their discussions of faulty methods. By building on their previous assertion that production is not evidence of decline, a study of the House of the Ship Europa can further evidence this idea while also making clear the variable nature of the relationship between residential and productive uses of domestic spaces—especially when that relationship entails a type of economic activity that

[12] Flohr 2013

[13] Flohr 2012 is the most applicable work to this paper as it focuses on the relationships of production and domestic space. However, he has written extensively on the *fullo* at Pompeii as well as edited a number of volumes on the economy of Pompeii, one of which includes the chapter Montiex 2012. Montiex also writes extensilvely on bakeries at Pompeii. Further reading on these sites of production is possible though not vital to the purpose of this paper. Flohr 2016 "Urban Craftsmen and Traders in the Roman World" is a volume that looks outside of Pompeii at urban craftsmen and the history of scholarship while "The Economy of Pompeii" focuses on aspects of the economy outside of production.

has largely been ignored in the consideration of the economy of Pompeii and the urban fabric of production.

The Garden in the Domus

The garden of the Roman *domus* has a long tradition of study that is largely centered around the archaeological remains of the Bay of Naples, where Pompeii plays a central role. These studies have focused on gardens as expressions of luxury and extensions of the decorative schemes of the house, often in the ways in which villas make use of gardens and the methods that smaller urban houses use to emulate these traits. In order to better understand the unique place that the House of the Ship Europa has in the urban fabric of the city, and to better understand how its garden space is significant, a survey of leading previous scholarship on domestic gardens will prove fruitful. Jashemski considers the *hortus* in some form to be an "essential aspect of the early Italic house."[14]

Gardens of the Roman Empire edited by whom? Published when? is a synthetic volume that covers a variety of types of gardens in various geographical contexts, that nonetheless has a distinct bias towards Pompeii. Only one chapter in this collection of essays is dedicated to the study of productive gardens, which will be discussed in the following section. The domestic garden finds its roots in production as a *viridarium* (English translation of this term in parentheses) or part of an earlier larger *heredium* (English translation of this term in parentheses). Originally, the main purpose of Roman gardens was not to create spaces of luxury

[14] Jashemski 2002 pg. 15 She points out the significant role the hortus place in the hereditary estate and these can be seen to expand and change, even found in the earliest houses at Pompeii.

and leisure but rather to provide food for the household.[15] The gardens arose out of necessity, but some aspect of produce cultivation, especially fruit, can also be found in later wealthy homes. The garden began to crystallize as a major domestic space with the adoption of the portico that brought a more formal appearance to this space. The portico garden was adapted from Hellenistic precedents and became a new feature in the gardens of Italy in the Republican period (2nd century BCE).[16] This formal space then grew to become a place of ostentatious display among the elite, while also remaining an important part of the home for all classes. First name? Morvillez, for instance, notes the economic and visual importance of trees within the garden and the extreme wealth they could attribute to the home.[17] Plants and their productive qualities were an inherent aspect of early gardens even as they began to become luxury spaces for the upper classes.

However, gardens grew to be much more than plots of land to grow produce for the household. They became built environments that were decorated as ornately as, if not more than, the interior rooms of a house. Villas in the Bay of Naples show extensive investment in creating luxurious garden spaces that were carefully planned and manicured. Villas were inherently tied to agricultural production but, by the late Republic, they had come to be mainly associated with a life of "luxury, ease, and quiet."[18] Land ownership and the home became markers of status for elite individuals and the garden increasingly came to be a key component in articulating one's

[15] Morvillez 2017 pg. 18,19 Early Samnite houses from Pompeii like the House of the Surgeon show this small vegetable patch or orchard that would have been capable of providing produce for the household.
[16] Jashemski 2022 pg. 15 She emphasizes the innovation and reinterpretation of the portico in Italy. It is a Hellenistic form that is affected but the native importance of gardens to create a more concrete architectural form that is uniquely Italic. There do not seem to be any Greek home who plant the portico, instead this is a sign of innovation.

[17] Morvillez 2017 pg. 23

[18] Hartswick 2017 pg. 73

status. Gardens came to be the location where spoils from war were displayed, echoing contemporary public practice.[19] Beyond questions of conquest, the garden became a powerful tool for the articulation of the identity of the owner of the home. It was a clear area for elite competition. The transformation of agricultural estates into spaces of luxury and leisure was a matter of great contention for many moralizing writers of the late Republic who saw the construction of richly ornamented villas as a hallmark of Rome's decline.[20] The heart of the Italic garden was its productivity, but this grew to be a secondary characteristic in many Roman homes.

In some cases, the houses of Pompeii show how these garden spaces were designed to evoke the countryside and larger, wealthier villas.[21] As villas were sites of agricultural production the process of emulating villa gardens carries with it some aspect of productive gardening, though the role of this in the experience of their owners would be somewhat limited. However, many of these villa gardens, and smaller urban house gardens focused not on production but on the careful curation of a natural environment for the pleasure of the viewer. These gardens were strategically planted and painstakingly manicured to create cohesive atmospheres of luxury and rest. In search of *amoenitas*, beauty of place, shrubs and plants were trimmed to replicate other forms, sometimes architectural to make the garden a clear extension of

[19] Marzano 2014 pg. 197 The peristyle garden of the villa became a place to show off the "intellectual activity of the owner" through its art by the 1st BCE.

[20] Hartswick 2017 pg. 74 Horace lamented the replacement of the productivity of the past for the impractical ornamental trees and flowers.

[21] Morvillez 2017 pg. 36 The house of D. Octavius Quartio is a clear example of an urban house using the suburban villa as a model for its garden and attempting to call to mind this luxurious space in the smaller scale of its garden. The House of Pansa added a large produce garden to the ends of its property, seemingly as an attempt to evoke rural atmospheres.

the home.[22] These built environments were a vital space within the home, meant for leisure and pleasure that were inspiredby Hellenistic precedents and elite practices.

According to Jashemski's calculation, gardens attached to houses constituted 5.4 percent of the excavated area of Pompeii while food-producing areas accounted for 9.7, almost twice the amount of planted land was dedicated to production as to luxury gardens. She gives 2.6 percent to gardens attached to "public buildings and businesses," though it is unclear what her definition of a business rather than a food-producing area is. The percentage of land devoted to gardens is equal to that for streets and public fora.[23] Gardens and planted space were an essential part of the urban fabric of the city, in a way that is easy to overlook in the modern archaeological park. Moreover, the majority of the garden area was planted for productive or economic purposes.

Productive Gardening at Pompeii

The identification and excavation of sites of productive horticulture at Pompeii as well as publications on the matter are largely the purview of Jashemski.[24] This orchard garden is not the only location of cultivation within the city walls of Pompeii at the time of its destruction (Fig. 1). First name? De Simone surveys the agricultural economy of Pompeii but omits any productive

[22] Hartswick 2017 pg. 79

[23] Jashemski 2002 pg. 16 2.6 hectares of land were devoted to domestic gardens while measurements are not given for other classes. This calculation is only an estimate and is likely skewed by the partial excavation of the city as there seems to be more open area unexcavated.

[24] Jashemski 2017 in *Gardens of the Roman Empire* is a synthesis of her excavations and major sites of market gardening at Pompeii. She additionally published reports on the House of the Ship Europa, the Gardens of Hercules, as well as a smaller shop-garden house she identifies as likely being a site of productive horticulture for profit.

horticulture from his? Her? analysis of feeding the city, though he does discuss viticulture.[25] The House of Pansa included a small peristyle garden but around a third of the property was taken up by a carefully organized large garden at the rear that Jashemski suggests would be for produce, as its clear rectilinear plan echoes other contemporary and modern produce gardens.[26] This house was one of the older Samnite houses and its inclusion of a large produce garden speaks to the importance productive gardens held in the early Italic house. It is unclear, however, if this was a true market gardening enterprise.

A large vineyard located directly north of the amphitheater was originally identified as the Forum Boarium. It has since been proven to be a vineyard with wine processing tools as well as *triclinia* for selling products to visitors, who might have been drawn to this area of Pompeii by the spectacles performed at the amphitheater. Fifty bones and two teeth were excavated near the *triclinia* located in this large vineyard. These bones displayed cleaver marks and appeared to have been split so the marrow marrow could be easily harvested, suggesting the use of this space for elaborate dining.[27] Like the House of the Ship Europa, the vineyard near the amphitheater was interplanted with trees, though the exact species have not been identified in this context. [28] The presence of this large vineyard indicates that the production of food goods within the city

[25] De Simone 2016 in "The Economy of Pompeii" He highlights the ability of the hinterland of the city to provide the necessary staple food products for the city with some importation from outside sources. He also devotes a significant portion to the cultivation of olives which can be seen in the sites excavated by Jashemski.

[26] Jashemski 2002 pg. 15 The excavation of this house did not record the exact plantings and instead Jashemski relied on her other excavation of produce gardens to identify this as such.

[27] Jashemski 2002 pg. 22

[28] Jashemski (2017) These two plantings were similar in style though the scale of the vineyard far outdoes the orchard garden of the House of the Ship Europa. Bones found at the *triclinia* were likely responsible for its identification as the Forum Boarium, however, they are rather good evidence of the use of the viticultural area for distribution, dining, and commerce

walls was not a unique case nor was it one that was typically hidden. The roots here were robust and easily identifiable alongside stakes, unlike the orchard garden where the presence and organization of roots was the only evidence of a vineyard.

In addition, the orchard garden of the House of the Ship Europa is not the only smaller scale viticulture site in Pompeii. The Caupona of the Gladiators also contains a vineyard interspersed with trees as well as a treading floor for the pressing of grapes by foot. Another location of viticulture in the city of Pompeii can be found by the Great Palaestra, which contains a similar infrastructure for grape processing. These two sites are on a smaller scale and considerably less developed and specialized. Instead, like the orchard of the House of the Ship Europa, they seem to be later installations which were accompanied by renovations of built areas, with some conversion of domestic space to processing locations.[29] In some ways it is similar to the House of the Ship Europa, though it shows much more conversion of space and less intent of repair.

The orchard garden in the House of the Ship Europa is not the only Pompeian orchard that takes up the majority of an *insula*. Excavations at 1.22 revealed an expansive orchard with mainly small trees, though it also contained older olive trees and an open-air *triclinium* shaded with trees. It also shows a similar water collection system from the roof of the house at the top of the orchard.[30] This space appears to have been dedicated solely to fruit and nut cultivation in a relatively organized and established manner. The owners of this property also appear to have

[29] Jashemski (2017) pg. 132 These two sites were also excavated by Jashemski and identified by root cavities and stake holes. The Caupona (I.20.1) was not an organized and evenly spaced vineyard like the one to the North of the amphitheater, it seems to have been a more casual endeavor. The second vineyard (II.9.6)

[30] Jashemski (2017) pg. 140 "About 90% had been small trees, which is characteristic of commercial orchards in the area today." This water collection system included a cistern and could have used roof runoff and a channel path to the orchard. Earlier excavation had removed soil that could have evidence interplanting.

used the orchard for dining, showing a marked difference from the purely productive function of the garden of the House of the Ship Europa. All of these examples of viticulture, market gardening, and orchard cultivation appear to be single use properties, except for the House of the Ship Europa which melds all of these endeavors into a single property on a grand scale. The same can be said of commercial flower gardening which appears to be the primary venture of the Garden of Hercules (II.8.6) but is just one of the myriad enterprises found at the House of the Ship Europa.[31] Though the productive activities found in the garden orchard were not unique, their combination and presentation to the *domus* and the public were. Various ancient literary sources present the agricultural life as one of moral righteousness: a viable means of accumulating wealth.[32] The open and apparent nature of these horticultural and viticultural projects seems to reinforce the acceptability of enterprises of this type in comparison to more profiteering professions.

Case Study: The House of the Ship Europa

Wilhemina Jashemski identified numerous spaces of commercial plant cultivation within the walls of the city of Pompeii all at varying scales. The largest site that evidences this is the urban vineyard found to the north of the amphitheater. In a context associated with domestic space, one of the most striking examples of market gardening comes from the House of the Ship Europa (I.15.3) which consists of two combined atrium houses with a large sloped open garden space, also located in the vicinity of the amphitheater (Fig. 3). Both of these sites are in the

[31] Jashemski (2017) pg. 143-148 Jashemski suggests that this commercial flower garden was producing for a perfume workshop as well as for creating decorative garlands. Here, clear plots for flower growing were identified in "complicated soil contours" which don't appear to have been present at the House of the Ship Europa.

[32] Cato *De Agricultura,* Varro *Res Rusticae*

Southeast part of the city and is located near other areas of intense horticulture and viticulture in Pompeii. Regio I is an area that saw massive reorganization of houses in the period following the 62 CE earthquake, including many of the *fullonicae* of Flohr's studies. Jashemski takes care to refute previous identifications of the commercial activity of the house such as a *fullonica* or ceramic workshop.[33] The house is named after a detailed graffito on the North side of its peristyle (10) showing a contemporary ship, which scholars believe to evidence a maritime connection to the owner of the house based on its accuracy and detail.[34] It could be that as a port city, naval trade was one of the industries of Pompeii that survived and left a new group of wealthy citizens following the earthquake of 62 CE, who then purchased and repurposed land.

The House of the Ship Europa can variably be considered a house, an economically productive property, a small-scale farm, a collection of built and open areas, but it is ultimately a commercial installation with a domestic history. The extensive renovation of the built spaces suggests that a major reorganization and reorientation of this property was carried out within the two houses that make up this estate. The simultaneous investment in improving some areas of the domestic space with the intensification of horticultural production in the garden area suggests the continuous use of this house for the purpose of habitation.[35]

[33] Jashemski 1974 pg. 392 Maiuri had suggested a fullonica because of the "basins in the small room off the peristyle" but there is no evidence of any treading stalls. It had at times been linked to ceramic production, likely because of the clay pit found in the garden, though there was no evidence of a kiln.

[34] Jashemski 1974 pg. 391 A basin with hydraulic plaster in the peristyle of I.15.3 as well as a basin to the rear and a large water installation at the back of 1=I.15.1 led early excavators to believe these basins could be vats for a fullery. However, there were no other typical constructions connected to fulleries.

[35] Anderson 2011 pg. 87 Anderson suggests that regular use could continue in atrium houses even during major renovation as construction is typically careful located in areas that do not obstruct major traffic flow within the house.

The entryway (3) that is considered the main entrance (Fig. 4) of the house complex does not follow the traditional axial layout of a typical Campanian atrium house but is instead off centered and opens onto the corner of a peristyle (10) (Fig. 3). This peristyle shows signs of constant restructuring and transformations.[36] These renovations appear to have been still underway at the time of the eruption as indicated by a large concentration of lime plaster found nearby.[37] The presence of construction materials indicates that this property was still in use and warranting continuing investment in its appearance. The peristyle shows the addition of a space created by one wall of a *triclinium* (12) and the closing in of the intercolumniations of the peristyle in order to form a low walled-in area covered in *cocciopesto* (a) (Fig. 5), which has been interpreted as a large basin used for storage at the time of the eruption. The haphazard placement of the amphorae here suggest that this was a space in transition, not one intended to be used for long-term storage. This basin was built originally as a water feature to accentuate the peristyle garden, perhaps a fishpond. Directly across the peristyle from the basin was a large window looking into another room (Fig. 6), also identified as a *triclinium* (1) which had a vaulted ceiling and a niche for a *lectus.*[38] These two spaces are then in sight of each other: a now utilitarian basin and storage area across from a dining room which was purposefully given a window onto the peristyle and by extension the large basin across it. The basin was originally built to be an accent to a luxurious room across the peristyle (Fig.7), but as the property was undergoing renovation these spaces lost their status and were repurposed in ways that were only

[36] Anderson 2011 pg. 81 Like houses in Anderson's study, the House of the Ship Europa's renovation is largely out of direct view of the public even when in central areas of the house.

[37] See Flohr's works for a study on the likelihood of living and working in houses under renovation following the 62 CE earthquake which used placement of materials and rubble heaps to measure the extent to which renovation would have interrupted regular daily activities in Pompeii.

[38] Pugliese 1990 pg. 963

somewhat disruptive to use of the space for living, but nonetheless out of the way of the majority of domestic traffic. The use of the basin as a storage space underscores the nature of the space as one in transition but does not, however, argue for a domestic space purely in decline. Instead, it can be said that it was no longer purely a luxury space.

At the other end of the peristyle was the kitchen (9) and latrine that was only lit by two small windows and a narrow doorway; it also contained stairs up to the second floor (Fig. 8). The kitchen is a remarkably cramped room that places a number of utilitarian necessities all in a small footprint. Though small, its presence here is a strong indication that the *domus* was still being used as a livable domestic space.[39] The entrance to this house aligns with the final stage of the entrance to the large garden at the rear of the house. The wall separating the peristyle from its larger counterpart in the back went through many iterations with the doorway moving before reaching its final form as an enclosure of columns with a single narrow doorway (b) (Fig. 9).[40] This direct line of sight is contradictory to Flohr's previous findings regarding workshops, where "there usually was no visual connection with the house's main entrance."[41] As mentioned previously, domestic spaces that had lost their originally intended function constitute an important exception to this rule. Additionally, this doorway does not align with any interior spaces, suggesting a purposeful division of the orchard garden from I.15.3. It is also important to note that this closed wall and small doorway was a final iteration of the back wall and the most divided of any version that was there.

[39] Flohr 2012 pg. 16 He uses the presence of distinct kitchens as evidence in multiple works to support the continuing simultaneous use of domestic and economic space even in houses needing repair or restoration.

[40] Pugilese 1990 pg. 964

[41] Flohr 2012 pg. 12

Accepting Jashemski's interpretation of I.15.3 as the main entrance to the property and the ongoing use of the space in some domestic capacity, this would be a clear line of sight to the economically productive space of this house (Figure 10). It is, however, important to note the construction of the wall separating the peristyle from the orchard-garden.[42] Like the fulleries and bakeries in Flohr's studies, there is a conscious effort to hide the economically productive space of the house from its more public and the residential areas. The wall prevents any direct line of site from the entrance or from the *taberna* which flanks it. It also makes use of a small doorway to create a neatly confined interior space that stands in stark contrast to the large open orchard garden on the other side. The spaces are clearly separated and contrasted, and the economic space is blocked from any public view.

There are a few potential explanations for this more open acknowledgment of economic activity which can extend to the fact that the main entrance and shop entrance are beside each other. The cultivation of plants was recorded as being morally upright and appropriate as a means of making money and it would not create the same kinds of sound and smell pollution that other types of economic activity would. Flohr has used the sounds and smells of various types of workshops as a motivator for their degrees of separation from traditional domestic space.[43] Greater discussion on literary evidence surrounding cultivation will follow. Here, consideration of the neutral or positive sensory addition this orchard-garden could have presented shows that

[42] Flohr 2012 pg, 16 Flohr discusses workshops which were separated from domestic spaces by the construction of a wall allowing them to "function without interfering too much with each other."

[43] Flohr 2012 pg. 10-11 He discusses generally the olfactory effect of mordents and dies, or "fire and smoke" would have had on defining the environment of the workshops and connected houses. He makes a point of emphasizing the addition of smell and hearing the workshops that would have played into the viewing of the decorative elements of the house by the public.

smell and sound would not have been a motivation for separating the garden from the domestic spaces of the houses.

This house is connected to I.15.1 through its garden, which will be my focus much later. *Pompei Pitture e Mosaici* suggests that I.15.1 was the primary house, while Jashemski favors I.15.3 as being the primary domestic space of the citizens and I.15.1 being quarters for slaves (see Figure 1).[44] I.15.1 features a traditional Tuscan style atrium. Access to the shared garden is much more difficult from this set of rooms. As it is on a typical axial plan, the tablinum (10) is directly across from the entrance (1). In order to move from the atrium to the garden one would have to pass down a hallway then turn slightly to the right and pass by a latrine (14). There would be no direct line of sight from the entrance or really anywhere in the atrium. Following Jashemski, this would not be intended as a means for guests to enter the garden, rather they would access it through I.15.3, if at all.[45] It mirrors the concealment of the orchard garden from the domestic areas of I.15.3 but creates even more distance. It appears that the access from I.15.1 to the garden was in the process of being totally closed at the time of the eruption, which only raises further questions as to the relationship of these structures with their large agriculturally productive orchard garden area. This space seems to show the least amount of disruption of traditional and expected domestic layout and also the greatest division from the garden. It could then be argued that this was the part of the house intended to remain a home, though whether for an owner and family or for a labor force is unknown.

[44] Pugliese 1990 pg. 964, Jashemski 1974 pg. 392

[45] Jashemski 1974 pg. 392 She puts forth some strong judgement about the organization of the area through which I.15.1 accesses the garden to suggest that it was disjointed and unorganized, as "a cistern puteal partially blocked the door," and therefore perhaps this space was meant for slaves.

Nonetheless, these are two distinct and intact domestic spaces which were combined to form part of a single property that serves a domestic and an economic purpose. The houses remain recognizable as such even with their renovations and work around and in conversation with the orchard garden to their rear. The only way to move between the two was through the garden, it linked these two seemingly disparate spaces. There is some evidence of construction, but as Flohr has previously pointed out, regular domestic? activity could have continued despite the building work and renovation being done. Another key point made by Flohr which is crucial to consider is the frequent correlation of investment in domestic space and installation of workshops.[46] While this is not a workshop, it is nonetheless an installation of economic production. Unlike workshops, however, it would not have created the same types of environmental pollution for domestic spaces, further suggesting that the habitable areas of the houses could have remained in use. There is certainly evidence of ongoing? construction in the peristyle at the time of the eruption, which would also suggest the continuous use of the house's domestic spaces. The House of the Ship Europa is situated among other houses that were reorganized for greater economic production as well as area of cultivation within the city wall, but this seems to be a property that retains more of its domestic organization.

The conscious separation and delineation of the built areas from the garden via a later wall with a single doorway in I.15.3 and the latrine and hallway of I.15.1 show that the owner of this insula was not intending to provide easy access and flow from house to garden. Instead, access and sightlines were largely constricted to create clear separation between the confined domestic spaces and the open garden. This would then suggest the continued use of the space for domestic purposes, as would the presence of the kitchen, as mentioned earlier. Flohr has

[46] Flohr 2012 pg. 3

observed the construction of walls to separate domestic spaces from workshops in numerous cases such as in VI.8.20 and VI.3.27.[47] The presence of purposeful partitioning here would then indicate, like the other cases, that the domestic area was meant to remain in use apart from the productive spaces. Flohr found that a number of workshops existed in what might have been considered a *domus*, but the productive space overtook any possibility for habitation. In these cases, the houses were small and there simply was not enough room to accommodate a workshop and a place to sleep, though a second floor is always a confounding possibility.[48] The presence of clear separation as well as the amount of space outside of designated productive area would indicate that the house was still being used as a residence in some capacity. Perhaps the most compelling mark of difference is the scale of the spaces reserved for domestic and productive activities. The house itself is relatively cramped but starkly juxtaposed with the orchard garden itself which is a wide-open expanse when viewed from immediately outside the house. As mentioned previously, the wall built at the back of I.15.3 creates a very stark and strong transition from the house to the garden. I.15.1 similarly has a later latrine which creates a constricted passage from the domestic area to the garden that would make a more intense juxtaposition of cramped space to the open garden.

It is the garden that is of the most interest as it shows a variety of productive activities, most notably market gardening and productive horticulture (Fig. 11). It is accessible through the

[47] Flohr 2007 pg. 140 These are a fullery and bakery respectively. The fullery was separated from a garden in order to block views from residential rooms, though it seems the owners of the house were not ashamed of working as a fuller as it was a prominent motif in its wall paintings. The baker had a wall built contemporary with its installation to close the back of the house's tablinum which had only a small doorway providing access between the workshop and house.

[48] Flohr 2007 pg. 139-140 He discusses V.i.14 and V.3.8 which were both bakeries that had no logical place for domestic activities of habitation. The former was so small that there was no room left while the latter was organized in such a central way that was not "practical if the house was to perform residential functions."

two house-structures, though as mentioned the route from I.15.1 was not straightforward. It also had an opening onto the side street by the stables at I.15.6. Much like the house entrance, this passageway allows a direct line of sight into the garden, further reinforcing the previous suggestion that the horticulture was among the types of production that did not need to be hidden from the public. This multiple entrance arrangement for production areas is relatively common in workshops, with variation present between shop types.[49] While the orchard garden does have direct street access, it does not appear to have any infrastructure for storage or distribution at I.15.6. This would then suggest that a majority of movement to and from the garden would have funneled through the house. However, the multiple entrances could also be attributed to a conscious effort to retain the domestic qualities of the house and allow economic activity to be separate. The *tabernae* (4) of I.15.3 could have served as convenient retail spaces while the other entrances allowed for the movement of larger quantities of produce.

The garden sits at a distance from the house on two distinct levels (Fig. 11), and its lower-level slopes to the South away from the houses (Fig. 12). It matches the topography of the land and meets the level of the street opposite the main entrances to the houses. A potential reason for the separation of workshops from domestic areas, used by Flohr to explain the proximity of fulleries to domestic space, is fire.[50] The risk of fire damage would have been absent in market gardening and yet, unlike fulleries, it is divorced from the home. This separation is most likely related to the topography; the upper terrace outside of the buildings was

[49] Flohr 2007 pg.137-138 He outlines two case studies VI.3.27 and I.6.7 which show direct access to the road and access solely through the atrium respectively.

[50] Flohr 2012 pg. 21 He found that fulleries were the only workshop type which did not seem to necessitate major separation. He also argues against extreme use of urine in the fulling process. He believes that one of the reasons they were so centrally located in atrium houses is that they presented no major risk of damage to the house at large.

too small for any large-scale cultivation, and thus the lower level was used for the majority of the orchard-garden. The majority of the open land in the *insula* is at the lower level, with only a small strip of open ground behind the houses (Fig. 12). In addition, the change in elevation would have made irrigation from the basin at the back of I.15.1 easier. There does not appear to be any built connection between the two levels other than earthen ramps. The motivation behind these divisions seems to be practicality rather than the creation of a specific landscape.

While not definitive, there is some evidence of clay extraction from the North-West corner of the garden which contained a low quality, but viable clay soil which was clearly harvested in large quantities before the eruption and left unfilled (Fig. 13,14).[51] There was no evidence of a kiln or other processing items for clay; if this hole was a clay pit, it would have been for the sole purpose of immediate sell. Given the renovation and general economic difficulties of the city at this time, it is reasonable that someone with such a large space already dedicated to economic production would not take any issue with extracting a natural resource for profit that does not disturb the other more established activities.

Clay extraction is not what makes this garden most interesting, but rather the plantings that Jashemski identified (Fig. 13). This garden was a multi-use space combining an orchard, a vineyard and a market-garden, and flower cultivation in a single property. This was not the luxury peristyle garden of the House of Pansa, nor does it resemble its produce garden. The planting here was not in neatly organized rows in long perfectly parallel lines. Instead, the orchard garden has a varied planting. The perimeter of the garden was planted with a variety of trees on both the upper and lower terraces as well as along the slope between the two. According

[51] Jashemski 1974 393 The garden area dips down just behind the houses and two earthen ramps follow the slope of the streets towards the back of the property.

to Jashemski, a total of 240 tree root cavities were identified in the garden. This is about four times as many as were found in the vineyard once known as the Foro Boario.[52] The sheer number of trees would have been hard to hide and certainly a known fact about this *insula*. The lines of sight into the property are useful for suggesting an intent to show off some aspects of the horticulture.

However, it is the extreme concentration of trees that indicates that this house was a well-established productive space that had increased cultivation at a later point. Overall, the trees were planted in a disorderly fashion, close together, with the majority of the trees being less than 10cm in diameter. Jashemski points out that both these characteristics, smaller overall size and denser planting, are typical of modern orchard cultivation rather than tree planting in vineyards. The abundance of smaller trees suggests a later intensive investment in the cultivation of the orchard garden. Though the majority were younger, there were still more robust trees present which suggest a long-term planting of the and the newer plantings a commitment to continuing use. These trees then were an intended and long-term investment rather than an opportunistic scheme for quick profits related to decline of the area of Pompeii. It is clear that this *insula* was an impressive, concentrated collection of trees in an orchard that can attest to the presence of olive and filbert trees. [53] A large number of the cavities were unable to be identified by species, though it stands to reason they would have been fruit or nut-bearing trees. This extensive orchard

[52] Jashemski 1974 pg. 397 An unlabeled figure gives quantities of tree cavities from the House of the Ship Europa and the large vineyard to the North of the amphitheater. The house shows twice as many smaller trees to medium trees while the vineyard has about the same number. There were 240 total root cavities identified at the house compared to only 58 in the large vineyard.

[53] Jashemski 1974 pg. 397

of trees would certainly have stood out in the cityscape with inhabitants recognizing the *insula* as a source of fresh produce.

As stated earlier, the property was not only an orchard but also contained two furrowed vegetable plots on the lower tier of the garden area (Fig. 13). Preservation was not sufficient to identify specific plants in these gardens, but they were likely vegetable plots as supported by descriptions from Pliny and Collumella.[54] These two plots are larger than necessary to support the household which is a major factor in identifying this property as one designed for profit and this garden as intended to grow for market rather than being a vegetable plot like is found in contemporary houses at Pompeii. These two patches are connected by a path, but they would have been among the trees and vines and likely not easily visible. As the plots were on the lower tier of the garden, they also would not have been visible from the houses on the higher level (Fig. 15). This clearly economic activity, which can also be seen to recall traditional rural values, was not a visual focal point of the property. The North garden was along the slope between terrace levels which may have made it visible from the edge of the upper terrace but likely not wholly from the houses. Nonetheless, vegetable gardens are but one of the myriad economic activities.

Another type of widescale cultivation found here was viticulture, though the exact nature of the vines? is unclear. The vines in the orchard garden are believed to have been under two years old and thus did not require staking.[55] The presence of younger vines and smaller trees all suggest a later period of intensification of cultivation efforts within the *insula* that would correspond with the continuing renovation of the houses. This property shows a long-term investment with the intent of having an economically productive orchard garden. This garden

[54] Jashemski 1974 pg. 396 She cites Pliny's *Natural History* 19.60 and quotes Columella *De Re Rustica* 10.90-94. Similar garden plots were found at the House of Pansa and the House of Epidius Rufus.

[55] Jashemski 1975 pg. 397

was largely separated from the built spaces which evidenced continuing attempts to remodel and repair that suggests an intent to retain some use of these spaces for habitation. Like the workshops discussed by Flohr, the productive area is separated from the residents and the public.

Conclusion

This property shows a complicated relationship between economic activity and the domestic space to which it is attached. The market gardening in the House of the Ship Europa presents an aspect of the economy of Pompeii that has largely not been considered in recent scholarship. It shows a careful mix of direct connection and obfuscation of its productive spaces from both the public and the private points of view. It shares many of the basic characteristics of the relationships with workshops in Flohr's studies but employs different strategies in its spatial relationships. The market garden orchard of the House of the Ship Europa by necessity requires land and space to produce profitable commodities. Additionally, it does not create the sound and scent pollution of other economic activities like fulleries. It can also benefit from the inherent importance gardens and plants have in the articulation of wealth and status in domestic contexts, though it is not a traditional garden. These differences play out in the differing use of confinement and openness in the articulation of domestic and economic space. The House of the Ship Europa has small domestic spaces and a wide, open productive garden that takes up most of an *insula*.

The vital nature of this horticultural activity in the economic chain of feeding the city and its connections to domestic space cements earlier discussions of the central role atrium houses played in the economy of Pompeii.[56] It also shows that there was great social benefit to clearly

[56] Flohr 2012 pg. 1

showing your wealth through your command of a large economic installation, in this case by the quantity of trees and plants in addition to the shear amount of land owned in a single property. The House of the Ship Europa shows a more open treatment of its productive spaces for the public than for those within the domestic spaces. It features direct lines of sight from the entryway and *tabernae* but overall narrow visual access to the orchard garden. In these ways it seems to echo the treatment of workshops in atrium houses. It was a property that was able to retain its domestic function even with the presence of major economic activity taking of the largest part of the property.

The presence of the market garden nonetheless has a profound effect on the organization of the built areas as evidenced by the later wall in I.15.3 and the restructuring and addition of a narrow hallway at I.15.1. The activity of the garden would have undoubtably affected daily life on the property for all individuals, but it is entirely possible for residents to have some regular separation. Likewise, public view and access to the economically productive areas of the house were structured and varied, but were also restricted. Study of this property furthers the more recent trend in scholarship to argue against the correlation of production and decline within Pompeian domestic environments, especially after the earthquake of 62 CE.

It echoes some concerns of houses with workshops and contributes to the general association of production with atrium houses but articulates a more unique relationship. There are numerous other areas of cultivation for economic gain in the South East area of the city around this property, but the House of the Ship Europa is a unique case where multiple types of productive horticulture exist on the same property. These other instances occur both in concert with seemingly domestic spaces, spaces wholly given to growing plants, and spaces that have entirely lost any semblance of domestic use.

The property encompassing insula 15 of regio I is a complex and confusing assemblage of built space and open garden. While the exact nature of the extent to which it was being used as a home is unclear, the preserved archaeological evidence clearly shows the continuous use of this property and the purposeful separation residential and economically productive spaces. This property was certainly in use at the time of Vesuvius' eruption in 79 CE and showed ongoing investment and renovation—even if the exact goal of these renovations is no longer clear. The muddled nature of the relationship between domestic and economic activities in the property of the House of the Ship Europa further problematize our understanding of what is a Roman house as well as what is a Roman garden.

Figure 1: Map of Pompeii showing building function
(Pompeii Bibliography and Mapping Project, digitalhumanities.umass.edu/pbmp/)

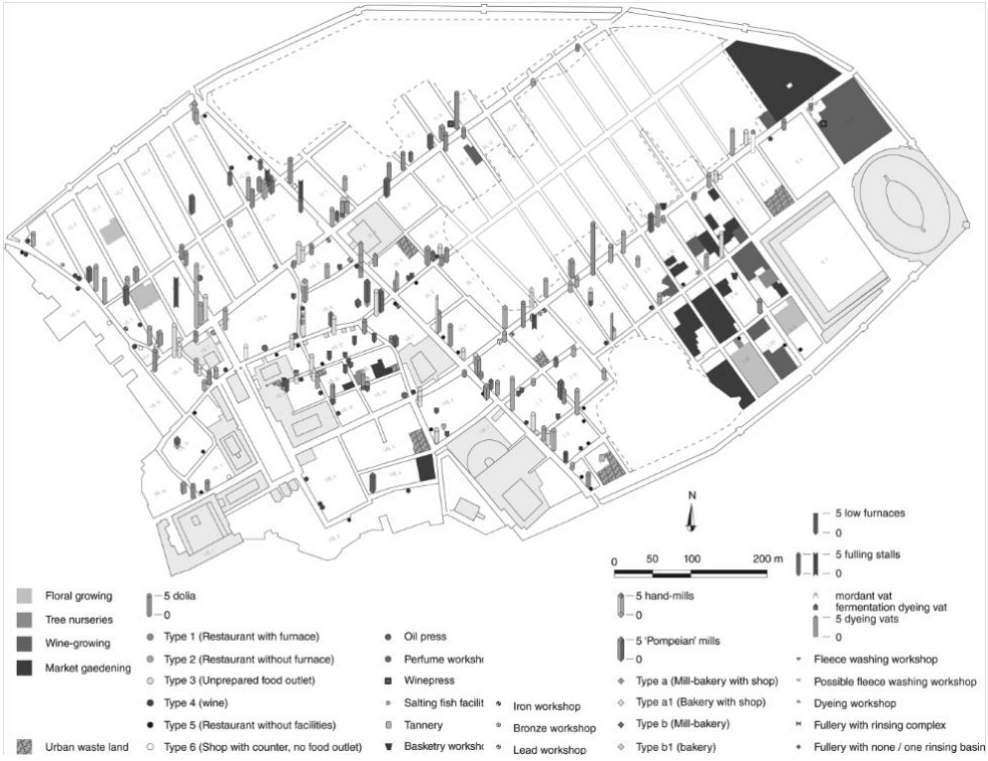


Figure 2: Map of Pompeii quantifying economic installations (Monteix 2016)

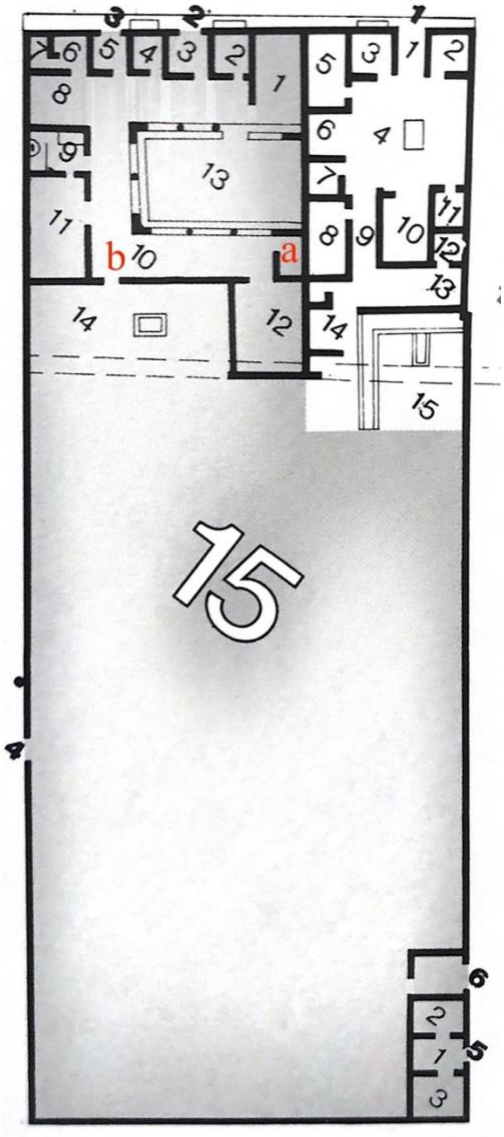


Figure 3: Plan of the House of the Ship Europa
(Pugliese 1990)

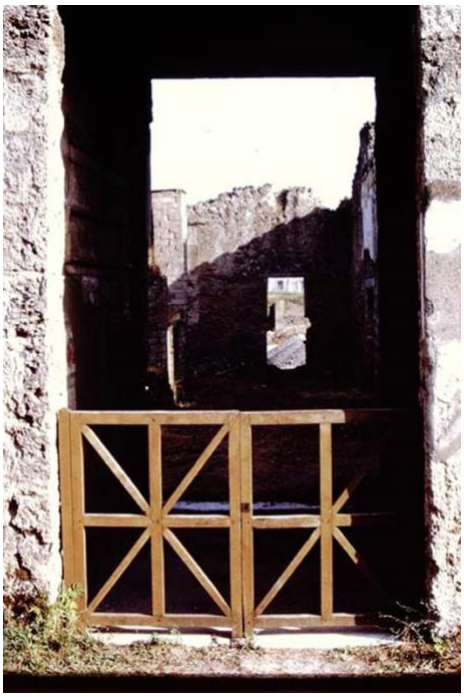


Figure 4: View from front entrance of I.15.3 towards rear doorway
(Pompeiiinpictures.com)

Figure 5: Basin with hydraulic plaster
(Pompeiiinpictures.com)

Figure 6: View from oecus towards basin across peristyle garden
(Pompeiiinpictures.com)

Figure 7: Water basin with stored amphorae
(Pompeiiinpictures.com)

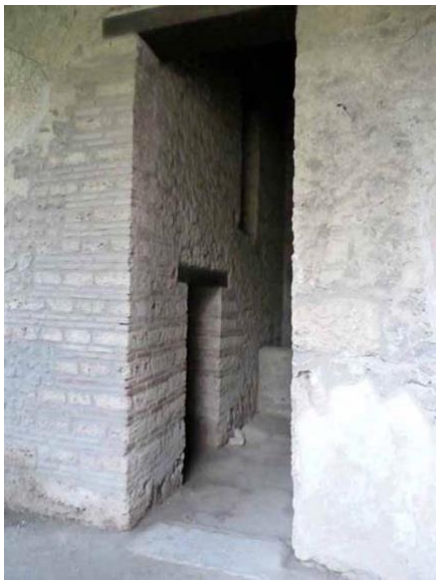


Figure 8: Narrow hallway and entry to kitchen area
(Pompeiiinpictures.com)

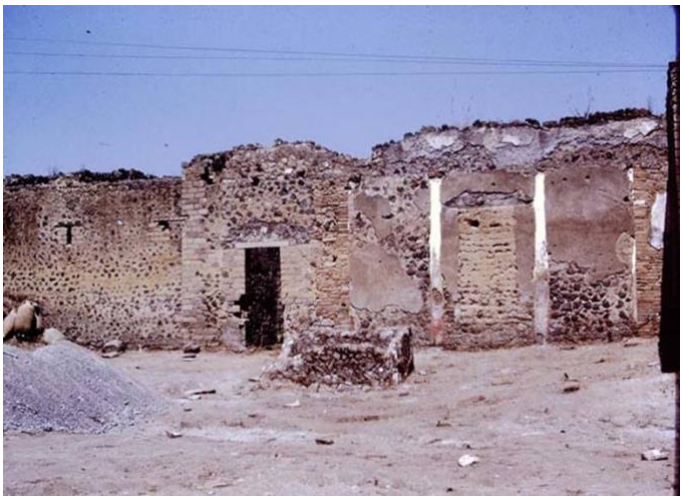


Figure 9: View from orchard garden of wall enclosing I.15.3 (Pompeiiinpictures.com)

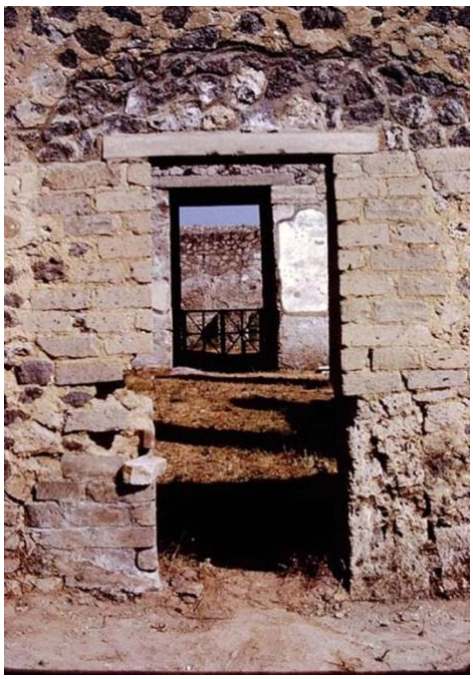
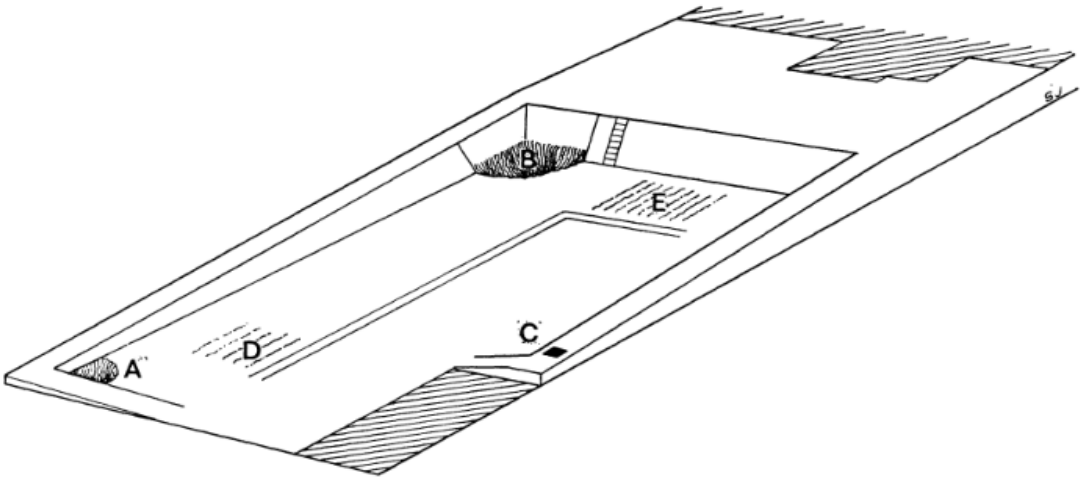


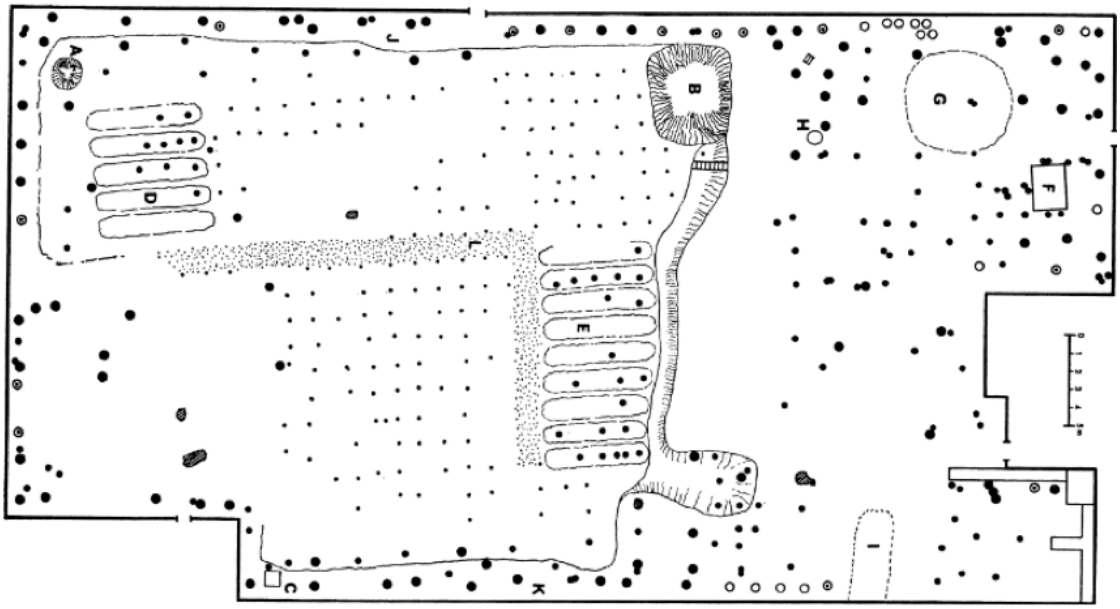
Figure 10: View from doorway in rear wall toward front entrance I.15.3 (Pompeiiinpictures.com)

Figure 11: View from SW corner of orchard garden looking N (Pompeiiinpictures.com)



Ill. 3. Topographical Plan of I. xv. a) small hole; b) large hole; c) square hole; d) SW vegetable garden; e) N vegetable garden

Figure 12: Topography of the orchard garden
(Jashemski 1974)



Ill. 4. Market-garden orchard (I. xv). a) small hole; b) large hole; c) square hole; d) SW vegetable garden; e) N vegetable garden; f) basin; g) pile of crushed lava; h) cistern; i) Fontana's channel; j) W ramp; k) E ramp; l) path. Dots indicate grapevine roots; small solid circles indicate roots 10 cm. or less in longest diameter; large solid circles indicate roots 11 to 29 cm. in longest diameter; irregular shapes indicate tree roots 30 cm. or more in longest diameter. Large empty circles indicate pots; circles with dots indicate root cavities containing pots

Fig. 13: Planting map of the orchard garden
(Jashemski 1974)

Figure 14: View from S of orchard garden looking N (Pompeiiinpictures.com)

Figure 15: Pit in NW corner of lower terrace, stairs from upper to lower level (Pompeiiinpictures.com)

Figure 16: Planted areas of lower terrace (Pompeiiinpictures.com)

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